

# Algorithms and Random Trees

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I will present a variety of recent and ongoing work at the interface of probabilistic analysis of algorithms and the study of random trees. First, I will discuss an ongoing project on how certain recursive distributional equations can be solved by importing rigorous results on the convergence of approximation schemes for degenerate PDEs, from numerical analysis. Second, I will discuss joint work with Pascal Maillard on the algorithmic hardness of finding low-energy states in the continuous random energy model of Bovier and Kurkova. Finally, I will also discuss one or both of (a), (b) and (c), where (a) is recently completed work with Marie Albenque on symmetrization of random trees and its application to convergence of random maps, (b) is an ongoing project about eigenvalues of random trees, and (c) is joint work with Sanchayan Sen, on distributional convergence of the minimum spanning tree of random 3-regular graphs.